

MITOCW | [watch?v=wlq4CssPo00](https://www.youtube.com/watch?v=wlq4CssPo00)

PROFESSOR: This is Mathematics for Computer Science, 6.042J/18.062J, a joint subject between electrical engineering and computer science and mathematics.

Welcome.

The instructors are Professor Adam Chlipala and Professor Albert R. Meyer.

And I'm Albert.

Hi, ya.

Quickly summarizing what this course is about, it's about the math that computer scientists almost all need regularly and which you're not likely to have come across in your standard calculus classes.

You may have seen some of this stuff in high school.

For example, in calculus courses people talk about functions on the real numbers.

And sometimes, they'll talk about functions on the complex numbers.

But computer scientists are usually dealing with much more abstract functions on data types and even functions on functions.

And I wonder how many of you, if I ask you to define abstractly what a function was, could give that definition.

In a couple of weeks in this class, you'll be able to do that with facility.

We will also be talking about a variety of standard discrete structures, starting with the numbers which we think of as a structure, because it's the numbers packaged with the operations on them, like plus and times and exponentiation.

We'll also talk about various other standard data structures, like graphs and trees.

And we'll look at methods for counting the numbers of these different kinds of data structures, as a typical fundamental problem in computer science, where you typically want to know how big is the search space.

For example, the search space of passwords had better be large or a cracker can just search through them all to find one that works.

And finally, we'll talk about discrete probability theory, which is simply a version of probability theory, where we can get by with sums instead of getting into the complications of integrals.

So here's a quick sanity check, or vocabulary check.

Do you know what discrete means?

And I'll give you a hint.

It doesn't mean discreet.

If you don't know, this is a good moment to stop the video and look it up.